

WHAT IS CLAIMED IS:

1. An electric motor comprising:

a stator:

an armature having an armature shaft and being disposed within said stator, wherein said armature includes a plurality of magnet wires formed in a plurality of coils, and wherein ends of said magnet wires are secured to a commutator associated with said armature shaft;

a thermally conductive plastic coating molded over said armature and said ends of said magnet wires to at least substantially encase said magnet wires in said plastic; and

10 a fan molded at one end of said armature shaft from said thermally conductive plastic.

2. The electric motor of claim 1, wherein said fan is integrally formed from said thermally conductive plastic used to at least substantially encase said magnet wires.

3. The electric motor of claim 1, wherein said armature includes an armature stack having a plurality of circumferentially arranged slots within which said magnet wires are disposed; and

wherein said thermally conductive plastic fills said slots.

12

5. An armature for an electric motor, comprising:

a lamination stack;

an armature shaft extending coaxially through said lamination stack;

a plurality of magnet wires wound around said lamination stack;

5 a commutator disposed on said armature shaft to which ends of said magnet wires are electrically coupled; and

a thermally conductive plastic coating molded over said armature, a portion of said coating forming an integrally formed fan adjacent said armature.

6. The armature of claim 5, wherein said thermally conductive plastic comprises a composite thermoplastic.

7. An electric motor for use with a power tool, said electric motor comprising:
a stator;

an armature disposed within said stator;

a thermally conductive plastic at least partially encasing a portion of said

5 armature; and

a molded fan formed from said thermally conductive plastic and disposed
adjacent one end of said armature to provide a cooling airflow over said armature
during use of said motor.

11/16/2016 10:53:26 AM

8. A method for forming an electric motor, said method comprising the steps of:

providing a stator;

providing an armature having a plurality of magnet wires wound therearound;

5 molding a thermally conductive plastic over at least a portion of said armature to at least partially encase said magnet wires; and

molding a fan at one end of said armature from said thermally conductive plastic.

9. The method of claim 8, wherein the step of molding a thermally conductive plastic over a portion of said armature comprises the step of molding a composite thermoplastic over at least said portion of said armature.

10. A method for forming an armature for an electric motor, said method comprising the steps of:

providing a lamination stack;

providing an armature shaft for supporting said lamination stack;

5 providing a commutator disposed on said armature;

winding a plurality of magnet wires around said lamination stack and securing ends of said magnet wires to said commutator;

performing a molding step to mold a thermally conductive plastic coating over a substantial portion of said lamination stack to at least substantially encase said magnet wires therewithin, and to form a fan adjacent one end of said lamination stack from said thermally conductive plastic coating.

11. The method of claim 10, wherein said molding step comprises using a composite thermoplastic to form said thermally conductive plastic coating.